



NON-PUERPERAL LACTATION INDUCTION : A VIABLE OPTION!

Surgery

Rashmi Vohra

Department of Reproductive Medicine and Surgery, SRIHER, Chennai

Monna
Pandurangi*Department of Reproductive Medicine and Surgery, SRIHER, Chennai *Corresponding
Author

N S Reddy

Department of Reproductive Medicine and Surgery, SRIHER, Chennai

ABSTRACT

Breastfeeding and developing mother-infant relationship is big challenge in surrogate pregnancy. Though protocols for lactation induction were proposed long back, very few reports are published. We present a case of successful lactation induction in genetic mother who was able to breastfeed her biological child after pregnancy by surrogacy. Lactation was induced with help of hormonal therapy, pharmacological and non-pharmacological galactagogues, mechanical nipple stimulation and continuous motivation for the purpose. The protocol followed is reviewed. To conclude, lactation induction can be a viable option even in non-puerperal mothers who want to give benefits of breastmilk to their infants.

KEYWORDS

Lactation induction, galactagogues, immunological

INTRODUCTION

Breastfeeding gives immunological, metabolic as well as psychosocial benefits for both mother and baby. Breast milk contains secretory IgA, anti-inflammatory agents, and many immunomodulators which provide breast fed infant immunological advantage over formula fed infants.¹

Each mother produces specific antibodies for the immune imprinting of her baby. Human milk contains diverse factors like human milk oligosaccharides (HMOs), milk epidermal growth factor or vitamin A, all contributing to mucosal development of neonate.² Human milk stimulates healthy intestinal microbial diversity leading to colonization of several Bifidobacteria and Lactobacillus species. These provide metabolic benefits to the baby. Thus, breastfeeding is protective against the respiratory and gastrointestinal infectious diseases.³ Breastfed infants run lower risk of various infections like rotavirus infection, otitis media, lower respiratory tract infections, sudden infant death syndrome, necrotizing enterocolitis, asthma, and childhood obesity compared to formula fed counterparts.⁴

Apart from nutritional and immunological benefits of breastmilk, it offers the possibility for mother and child to experience the emotional and affective benefits of breastfeeding, increasing the mother-child bond.

Case report

A 31 year old woman married for 9 years presented with secondary infertility with recurrent pregnancy loss with stage 4 endometriosis and severe adenomyosis with multiple fibromyomas in her uterus. Uterus was irregularly enlarged to 12 weeks gravid uterus with anterior and posterior wall thickness 18 mm and 44 mm, respectively. She underwent laparoscopic right cystectomy for endometriotic cyst. Endocrine screening, karyotyping and screening for antiphospholipid antibodies negative. AMH was 3.6 ng/ml. Semen analysis was normal. Karyotyping for both partners was normal.

In view of severe adenomyosis and multiple fibromyoma uterus, patient was planned for segmental IVF. She underwent controlled ovarian hyperstimulation using a standard protocol and 12 oocytes retrieved out of which 8 got fertilized. Post stimulation she underwent myomectomy twice. Twice frozen embryo transfer done but both resulted in implantation failure despite good endometrium. In view of diffuse adenomyosis patient was given option for pregnancy by surrogacy as only two embryos were left. Two frozen embryos transferred to surrogate host which resulted in a singleton pregnancy. Pregnancy went uneventful and baby was delivered by cesarean section at 38 weeks.

When surrogate host reached 24 weeks of gestation, the genetic mother given option of breast feeding her arriving baby to which she consented. Lactation induction protocol was started when surrogate host reached 28 weeks of pregnancy. To mimic the pregnant state,

genetic mother was given low dose combined oral contraceptive pills (COPs) once daily continuously and tablet Domperidone 10mg three times a day which was increased to 20 mg three times a day. Her breasts became heavy and increased in size as per her. COPs stopped when surrogate host reached 34 weeks. By this time genetic mother had spontaneous milk secretions from breast.

Following withdrawal bleeding, the genetic mother was explained to add natural non-pharmacological galactagogues along with same dose of domperidone and to start pumping both the breasts each for 5-7 minutes every 3 hours during daytime. When surrogate host reached 36 weeks pregnancy, genetic mother was advised breast pumping atleast once at nighttime also. By this time she was able to pump 4-5 spoons of milk. Her serum prolactin levels were 90 ng/ml.

Baby was delivered by cesarean section at 38 weeks and was put to breasts of genetic mother who was able to feed the baby adequately. She was discharged on second postpartum day after evaluation of neonatal status on exclusive breast feeding. On 4th postpartum day, baby presented with hypoglycemia, when supplemental feeds were started along with breastfeeding. During breastfeeding, tablet domperidone was continued for 4 weeks in same dose and gradually tapered by 10mg every week and stopped. Throughout the protocol, our patient did not experience any side effects of the drugs.

The genetic mother felt very satisfied with induced lactation experience. She expressed her desire to breast feed her baby as long as possible.

DISCUSSION

Breastfeeding is not something which only a woman who has given birth can do, but if proper protocols are followed, it can be successfully established in non-puerperal woman too. Induction of lactation in non-puerperal women can be used in case of surrogacy, adoption, same sex couples, orphaned infants, maternal illness, seropositive mothers, transgenders or maternal demise. Lactation was induced in our case to achieve mother-infant relationship and to provide immunological as well as nutritional benefits to the neonate.

Lactation induction refers to triggering breastmilk production in woman who has never given birth to a child. Relactation is triggering breastmilk production in woman who has given birth but who either did not breastfeed or stopped breastfeeding.

The hormones involved in induced lactation are same as in natural lactation, estrogen, progesterone, prolactin and oxytocin. Normal levels of prolactin in non-puerperal state are 10-25 ng/mL. During pregnancy prolactin levels start increasing by 8 weeks speaking to 200-400 ng/mL at term. Levels fall by 50% (100mg/dl) by first postpartum week and further declining to 40-50 ng/ml by third postpartum month. The serum prolactin levels shows 10-20 fold rise with each act of suckling.⁵

Emilie Zingler et al have reported a case of a 39-year-old intended mother in whom despite sequential exposure to galactagogues, nipple mechanical stimulation, serum prolactin levels could not increase but still mother was able to breastfeed for four weeks, and expressed great satisfaction with the experience.⁶

The basic framework for nonpuerperal induced lactation mimics the pregnant state and delivery described above. The framework followed is: (1) Estradiol and progesterone supplementation to mimic high levels seen during pregnancy, (2) Use of a galactagogue to increase prolactin levels, (3) Mechanical nipple stimulation to increase prolactin and oxytocin levels, and (4) Reduction in estradiol and progesterone levels when infant arrival is approaching near, thus mimicking delivery.

Full milk production unable to occur before delivery as high progesterone and estrogen in pregnancy are strong inhibitors of prolactin. Progesterone inhibits mRNA synthesis of milk proteins encoded by casein gene and estrogen prevents prolactin entering milk secretory cells. On withdrawal of hormonal support in pregnancy, prolactin is released and lactation ensues.

There are different protocols which can be followed for induction of lactation, most important parameter is the length of time period available before arrival of the baby. This is the reason that induction of lactation is more successful after surrogate pregnancy than after adoption as longer period of preparation is available.⁷

Newman-Goldfarb protocols are most commonly used protocols for non puerperal lactation induction.⁸ Canadian breastfeeding foundation also uses the same protocol for lactation induction.

Various galactagogues are available for inducing lactation, including, Metoclopramide, Domperidone, Sulpiride, Chlorpromazine, TRH, Fenugreek Herb and Blessed Thistle Herb. Domperidone was used in present case as the chief pharmacological galactagogue due to safety of the drug. It is the only galactagogue which comes under Hale's lactation risk category L1.⁹ It is peripheral Selective Dopamine D2 Receptor Antagonist and thus crosses blood brain barrier minimally with less likely extrapyramidal side effects when compared to metoclopramide. Side effects include gastrointestinal side effects, dry mouth, skin rash, headache, tremors and bradycardia.

Non-pharmacological galactagogues are useful if taken in proper doses which include blessed Thistle herb and fenugreek seeds. General instructions are given to include oatmeal diet for breakfast, maintaining adequate hydration and to reduce intake of beverages containing caffeine.

Perrin et al. in a pilot study revealed that induced lactation has similar or higher level of proteins, IgA, lactoferrin, and lysozyme than puerperal mother's own milk.¹⁰ In many case reports regarding induction of lactation, the main reason for starting it is not only the nutritional and immunological aspects of breastmilk but the bonding which mother child pair develops.

During 57th annual teratology society meeting, a retrospective review of breastfeeding clinic in Toronto identified 1005 infants whose mothers took domperidone as a galactagogue while feeding. No serious adverse effects were reported in infants.¹¹

Reisman et al describes a case of lactation induction in 30-year-old transgender woman receiving spironolactone, estrogen and progesterone for feminizing hormone therapy. Lactation was induced with help of domperidone and breast pumping. Enough milk was produced to feed her child exclusively for 6 weeks.¹²

In Nemba's study, women who had never lactated were treated with a single priming dose of medroxyprogesterone (Depo-Provera), 100 mg, 1 week before receiving chlorpromazine, 25 mg, four times daily or metoclopramide, 10 mg, four times daily. Of the 11 women who attempted this method of inducing lactation, all achieved success.¹³

Breastfeeding facilitates mother-child bonding by allowing close skin and eye contact benefitting mother-infant relationship. Non-nutritional benefits of breastfeeding include emotional benefits to both mother and infant. Breastfeeding has calming, relaxing and analgesic impact on child; and stress relieving influence on mother.¹⁴

We faced a few difficulties while following the protocol. First, we were not able to increase the dose of tablet domperidone to the maximum as per Newman Goldfarb protocol because our patient was staying abroad and we could see patient only on the day of delivery. Second, we could not monitor serial prolactin levels to see the response. But despite all this, our lactation induction went successful and mother could breast feed her baby well. We presented this case to increase the awareness about lactation induction in non pregnant mothers.

CONCLUSION

Lactation Induction is a process, it requires patience of both mother and physician. Positive attitude, motivation, and commitment are key for successful lactation induction. Women who think they will produce milk are much more likely to produce milk. Breastfeeding is not something mechanical; it is the nurturing relationship of two individuals.

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